

# PATENT SPECIFICATION

(11) 1 296 160

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## DRAWINGS ATTACHED

- (21) Application No. 48177/70 (22) Filed 9 Oct. 1970  
(23) Complete Specification filed 14 May 1971  
(45) Complete Specification published 15 Nov. 1972  
(51) International Classification H04M 1/05  
(52) Index at acceptance H4J 3A 3F 3N 3P



## (54) IMPROVEMENTS IN OR RELATING TO TELEPHONE RECEIVER/TRANSMITTER ASSEMBLIES

(71) We, S. G. BROWN LIMITED, a British Company, of Greycaines Estate, the moulding and; at the other end is the microphone transducer housing which is preferably moulded and adjustably secured 50

## SPECIFICATION NO 1296160

Inventor: THOMAS DENIS IBBOTSON

By a direction given under Section 17 (1) of the Patents Act 1949 this application proceeded in the name of S.G.BROWN COMMUNICATIONS LIMITED of Amplivox House, Beresford Avenue, Wembley, Middlesex, a British Company.

THE PATENT OFFICE

R 16499/3

20 construction enabling the assembly to be used as either a hand-held telephone handset or as a headset worn on the head.

25 According to the present invention, a telephone transmitter/receiver assembly comprises a receiver transducer, a microphone transducer, a body member to which the receiver transducer and the microphone transducer are secured and an extensible member shaped to form, when extended, a headband, said extensible member at one end being pivotally attached to the receiver transducer or to said body member near to the receiver transducer, the pivotal attachment being such that, for use as a handset, the extensible member can be swung to a position adjacent said body member whilst, for use as a headset, the extensible member can be positioned as a headband. When used as a headset, the body member forms a microphone boom extending from the receiver transducer housing to support the microphone in front of the mouth of the wearer. By alteration of said adjustable attachment, the headband can be positioned adjacent the body member and these two parts together can form the handgrip for holding the assembly for use as a handset.

45 Conveniently said body member is a moulding which may be integral with or attached to the receiver transducer housing. Preferably the earpiece is at one end of

screw for securing the headband in the required position. The second spring strip at its outer end preferably carries a resilient pad.

70 When used as a headset, the extensible element is extended over the wearer's head by the required amount; the strips have a curvature such that the spring tension holds the extensible element in position on the wearer's head with the earpiece closely over the wearer's ear. The ball and socket connection permits of adjusting the earpiece with respect to the headband and, once adjusted for an individual wearer, the adjustment can be retained by clamping the ball and socket system. Preferably the hollow element into which the springs can be retracted is shaped so that it also acts as a head pad for distributing the weight of the assembly over a wide area on top of the wearer's head. When converted into a handset, the headband springs are retracted into this hollow element which is then positioned along the back of the aforementioned body member, the body member and headband thus providing a hand grip of adequate dimensions for the user to grasp. A clamp may be provided for holding said hollow element in this position on the body member. A flexible electrical connection to the assembly is preferably taken into the earpiece, the microphone connection extending 85 90 95

SPECIFICATION AMENDED - SEE ATTACHED SLIP

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## (54) IMPROVEMENTS IN OR RELATING TO TELEPHONE RECEIVER/TRANSMITTER ASSEMBLIES

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(71) We, S. G. BROWN LIMITED, a British Company, of Greycaines Estate, North Watford, Hertfordshire, (formerly of Shakespeare Street, Watford WD1 7QF, Hertfordshire) and THOMAS DENIS IBBOTSON, a British Subject, of S. G. Brown Limited, Greycaines Estate, North Watford, Hertfordshire, (formerly of Shakespeare Street, Watford WD1 7QF, Hertfordshire) do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

15 This invention relates to telephone receiver/transmitter assemblies and has for its principal object to provide an improved construction enabling the assembly to be used as either a hand-held telephone handset or as a headset worn on the head.

20 According to the present invention, a telephone transmitter/receiver assembly comprises a receiver transducer, a microphone transducer, a body member to which the receiver transducer and the microphone transducer are secured and an extensible member shaped to form, when extended, a headband, said extensible member at one end being pivotally attached to the receiver transducer or to said body member near to the receiver transducer, the pivotal attachment being such that, for use as a handset, the extensible member can be swung to a position adjacent said body member whilst, for use as a headset, the extensible member can be positioned as a headband. When used as a headset, the body member forms a microphone boom extending from the receiver transducer housing to support the microphone in front of the mouth of the wearer. By alteration of said adjustable attachment, the headband can be positioned adjacent the body member and these two parts together can form the handgrip for holding the assembly for use as a handset.

45 Conveniently said body member is a moulding which may be integral with or attached to the receiver transducer housing. Preferably the earpiece is at one end of

the moulding and; at the other end is the microphone transducer housing which is preferably moulded and adjustably secured to the body member.

The extensible member conveniently comprises a pair of metal spring strips, each spring strip being telescopically secured in a hollow element, conveniently a rigid plastics moulding, so that the two strips can be extended in opposite directions out of said hollow element. One of said spring strips at its outer end is adjustably secured to said receiver transducer or to said body member near the receiver transducer; conveniently it is secured with an adjustable ball and socket connection to the earpiece, the connecting having a clamp, e.g. clamping screw for securing the headband in the required position. The second spring strip at its outer end preferably carries a resilient pad.

When used as a headset, the extensible element is extended over the wearer's head by the required amount; the strips have a curvature such that the spring tension holds the extensible element in position on the wearer's head with the earpiece closely over the wearer's ear. The ball and socket connection permits of adjusting the earpiece with respect to the headband and, once adjusted for an individual wearer, the adjustment can be retained by clamping the ball and socket system. Preferably the hollow element into which the springs can be retracted is shaped so that it also acts as a head pad for distributing the weight of the assembly over a wide area on top of the wearer's head. When converted into a handset, the headband springs are retracted into this hollow element which is then positioned along the back of the aforementioned body member, the body member and headband thus providing a hand grip of adequate dimensions for the user to grasp. A clamp may be provided for holding said hollow element in this position on the body member. A flexible electrical connection to the assembly is preferably taken into the earpiece, the microphone connection extending

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from the earpiece to the microphone transducer through said body member. When used as a handset the flexible connection from the earpiece may be positioned between the body member and the aforementioned hollow element of the headband so that the flexible connection extends outwardly from the assembly in the conventional position for a handset cord, i.e. in the region of the microphone transducer.

The hollow element of the headband is preferably formed so that the two headband spring strips, can lie one on top of the other within the hollow element, suitable guides being provided so that they slide into this position as they are retracted into the hollow element.

The following is a description of one embodiment of the invention reference being made to the accompanying drawings in which:—

Figure 1 is a front view of a telephone receiver transmitter assembly when used as a headset and shows in section a hollow element for holding headband spring strips;

Figure 2 is a front view of the assembly of Figure 1 when used as a handset and shows in section the earpiece; and

Figure 3 is a side view of the apparatus, when arranged as a handset, showing the microphone transducer partly cut away.

Referring to the drawings there is shown a body moulding 10, conveniently of a rigid plastics material, which moulding is formed integrally with the rear part 11 of an earpiece to which is attachable an ear cap moulding 12. The body moulding 10 is a hollow member and, at the end remote from the earpiece, carries a microphone transducer moulding 13 containing a noise-cancelling microphone 23. The microphone transducer moulding 13 is attached to the body member by a screw 14 which permits of pivotal movement of the microphone transducer for adjusting the position of the microphone with respect to the earpiece.

Referring to Figure 1, the headband comprises a hollow moulding 15 into which can be retracted two metal spring strips 16 and 17. The spring strip 16 at one end extends into the moulding 15 and at the other end is secured onto the earpiece part 11 of the body moulding 10 by means of a clamp nut 18 clamping a washer 19 and a domed screw 20 forming an adjustable ball and socket joint. The clamp nut 18 permits adjustment of the position of the spring strip 16 relative to the ear cap in all three axes. The strip 17 carries, at the end remote from the moulding 15, a resilient pad 21. The two spring strips 16 and 17 can slide into the moulding 15 which is internally shaped so that, as the strips enter the moulding, they are guided so as to lie one on top of the other in the retracted position. In the extended position,

the members 15, 16, 17 form a headband and the moulding 15 is shaped to form a head pad for distributing the weight of the assembly over a wide area on top of the wearer's head.

For use as a handset, as shown in Figures 2 and 3, the headband spring strips 16 and 17 are retracted into the moulding 15 and the headband assembly is rotated, after slackening the nut 18, so as to lie adjacent the body member 10, extending along that body member to the region of the microphone transducer moulding 13. A connecting cable 22 leads into the earpiece and, when the assembly is used as a handset, this cable is positioned between the members 10 and 15 and is retained therein by lugs 24 secured on the aforementioned screw 14.

#### WHAT WE CLAIM IS:—

1. A telephone transmitter/receiver assembly comprising a receiver transducer, a microphone transducer, a body member to which the receiver transducer and the microphone transducer are secured, and an extensible member shaped to form, when extended, a headband, said extensible member at one end being pivotally attached to the receiver transducer or to said body member near to the receiver transducer, the pivotal attachment being such that, for use as a handset, the extensible member can be swung to a position adjacent said body member whilst, for use as a headset, the extensible member can be positioned as a headband.
2. A telephone transmitter/receiver assembly as claimed in claim 1 wherein the microphone transducer is a noise cancelling microphone.
3. A telephone transmitter/receiver assembly as claimed in either of the preceding claims wherein said body member is a moulding integral with an earpiece containing the receiver transducer.
4. A telephone transmitter/receiver as claimed in claim 3 wherein the microphone transducer is contained in a microphone case moulding adjustably secured to the body member.
5. A telephone transmitter/receiver as claimed in any of the preceding claims wherein said extensible member comprises a pair of metal spring strips, each spring strip being telescopically secured in a hollow element so that the two strips can be extended in opposite directions out of said hollow element, one of said strips at its outer end being adjustably secured to said receiver transducer or to said body member near the receiver transducer.
6. A telephone transmitter/receiver as claimed in claim 5 wherein said hollow element is a rigid plastics moulding.
7. A telephone transmitter/receiver as

claimed in either claim 5 or claim 6 wherein said hollow element is shaped as a head pad for distributing the weight of the assembly over an area on the top of the wearer's head.

5 8. A telephone transmitter/receiver as claimed in any of claims 5 to 7 wherein said hollow element is formed with guides which guide the spring strips so that these strips lie one on top of the other in the hollow element when retracted.

10 9. A telephone transmitter/receiver assembly as claimed in any of claims 5 to 8 and having the receiver transducer as an ear-piece wherein said one of said spring strips is secured with an adjustable ball and socket connection to the earpiece.

15 10. A telephone transmitter/receiver assembly as claimed in claim 9 wherein said adjustable ball and socket connection has a

clamp for securing the headband in a required position.

11. A telephone transmitter/receiver assembly as claimed in any of claims 5 to 10 wherein the other of said spring strips at its outer end carries a resilient pad. 25

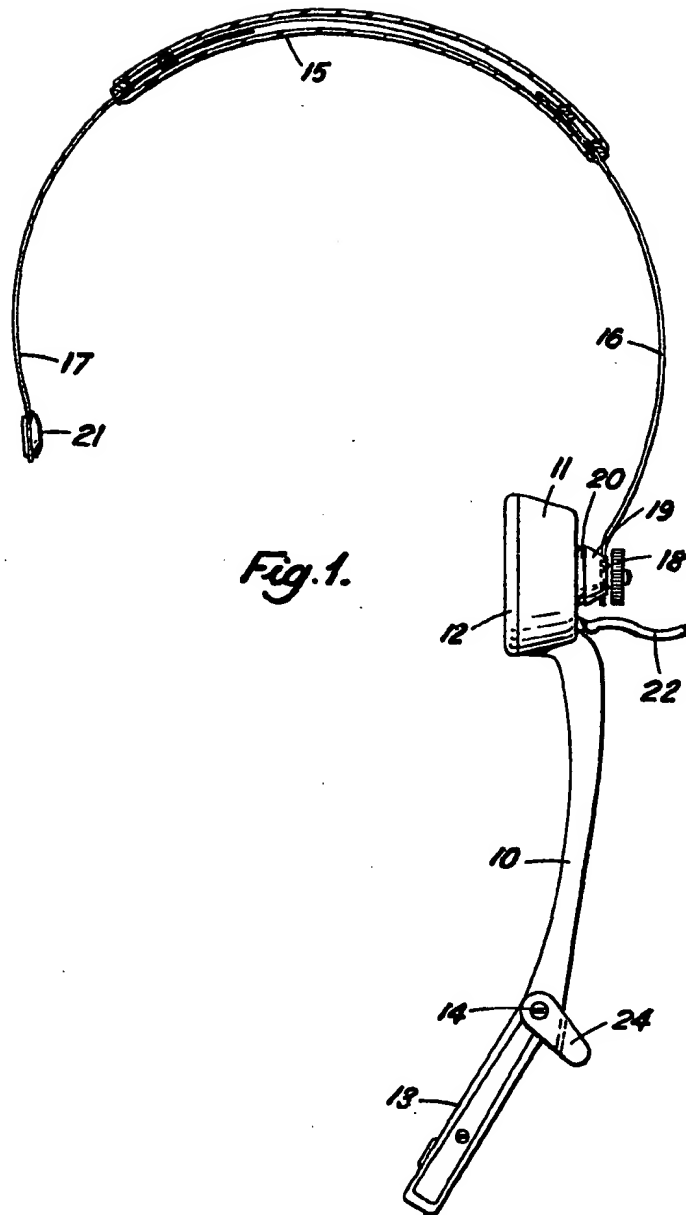
12. A telephone transmitter/receiver assembly as claimed in any of claims 5 to 11 wherein a clamp is provided for holding said hollow element along said body member when the assembly is used as a headset. 30

13. A telephone transmitter/receiver assembly substantially as hereinbefore described with reference to the accompanying drawings. 35

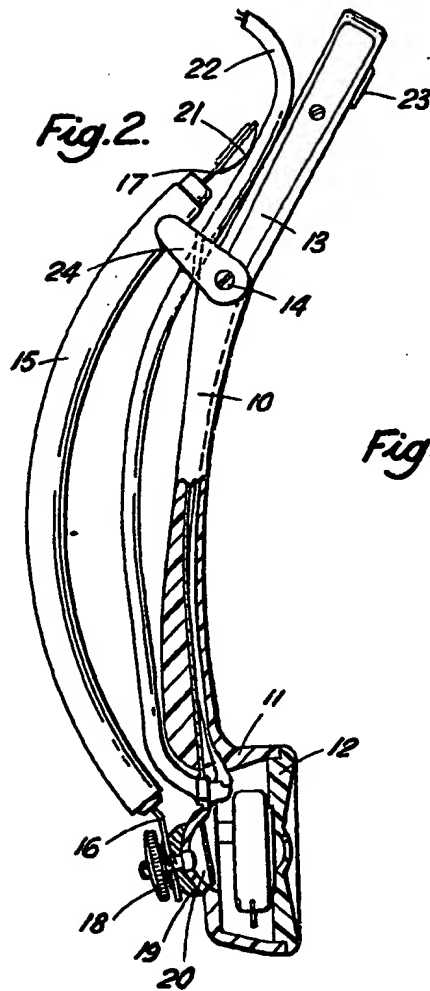
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*Fig. 1.*



*Fig. 3.*

